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NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

TCS-4410-63-KH
24 September 63

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MEMORANDUM FOR: Talent Control Officer
Deputy Director of Science & Technology
ATTENTION: REDACTED 25X1A

SUBJECT: PI Suitability Evaluation of TPT Missions 1, 2 & 3

1. A photo Interpretation suitability evaluation of the TPT missions (TPT-1, TPT-2 and TPT-3) has been completed.
2. These missions, as we understand, have been flown for test purposes, and therefore have been evaluated as such, for we do not have complete knowledge of system design or anticipated goal. Therefore, the evaluation is limited to the overall image quality of the material provided, which has been mentally compared with the overall average quality of the "B" system. It must be remembered, however, that our experience with "B" photography involves a huge volume of material exposed over varying types of terrain and atmospheric conditions.
3. Also, it is not known whether methods for incorporating camera attitude determination etc., for each exposure will be, or can be, used on this system. This, of course, is of great importance to PI suitability in determining accurate measurements.
4. Overall image quality on the three test missions (TPT 1, 2, & 3) is considered very good. Image quality is consistent on the format within the 62 degrees of planned angular coverage. However, the areas beyond 62° on both supply and take-up sides of all frames are severely underexposed, due to vignetting. This effect causes deterioration in image quality. Other degrading factors, but of a minor nature include diagonal light leaks occurring within 1.5 frames of both camera off and camera on positions (occurs on all three missions); the frame remaining in the camera during camera off is totally fogged (occurs on all three missions); and intermittent minus density streaks parallel to the un-titled side of the format (test mission TPT-1 only).
5. The photographic take of the missions was flown over various types of terrain, (Mt. Whitney, Mojave Desert and Los Angeles) and in

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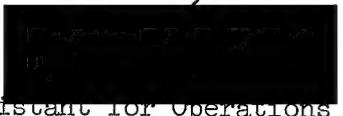
different types of weather conditions, (clear, high, thin cirrus clouds and heaviest smog in history over Los Angeles) with only the high, thin cirrus clouds degrading the image quality to any extent.

6. The resolution target at Indian Springs, Nevada is covered by all three missions. Interpretation of this target from the negative indicates approximately 1 to 1.5 feet of ground resolution.

7. In general, comparing the TPT photography to "B" camera photography reveals that the TPT material is superior in ground resolution, acuity, and somewhat in contrast. As we evaluate the material at this time the primary factor of TPT photography compared to "B" photography is ground coverage. The TPT is limited in lateral coverage compared to that obtained by the "B" camera system. The TPT lateral coverage can be increased 8° to a total of 70° of angular coverage. However, even with this there is little comparison between this and the horizon to horizon coverage of the "B" camera (14.4NM compared to 75 NM of usable ground coverage).

8. If and when this system becomes operational it is hoped that the tracking camera will be included as a part of the overall package.

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Assistant for Operations
National Photographic Interpretation Center

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